

Application Serial No.: 10/646,842
Amendment dated September 22, 2004
Reply to Office Action of July 2, 2004

Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

What is claimed is:

1. (Original) A vent system for an infusion drip chamber, comprising:
 - an automatic air eliminator communicating with an interior and an exterior of said infusion drip chamber and capable of automatically venting air from said infusion drip chamber in a substantially continuous manner;
 - a mechanical air eliminator communicating with said interior and said exterior of said infusion drip chamber and capable of mechanically venting air from said infusion drip chamber at discrete time intervals, said mechanical air eliminator comprising:
 - a conduit capable of fitting in a port of said infusion drip chamber;
 - a plunger chamber formed in said conduit;
 - a plunger movable in said plunger chamber;
 - a biasing device operative to maintain said plunger in a normally closed position; and
 - at least one vent opening in said plunger chamber and communicating with said exterior of said infusion drip chamber, with said at least one vent opening being spaced apart from said plunger when said plunger is in said normally closed position;
 - wherein said plunger is capable of being displaced by a positive air pressure in said drip chamber until said at least one vent opening communicates with said interior of said infusion drip chamber and vents said infusion drip chamber.
2. (Original) The system of claim 1, wherein said mechanical air eliminator and said automatic air eliminator are capable of simultaneously eliminating air from said infusion drip chamber.
3. (Original) The system of claim 1, wherein said mechanical venting occurs independently of said automatic venting.
4. (Original) The system of claim 1, wherein said mechanical venting occurs after said automatic venting.

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5. (Original) The system of claim 1, wherein said mechanical air eliminator and said automatic air eliminator are capable of being used in combination to increase an air venting rate.

6. (Original) The system of claim 1, wherein said automatic air eliminator includes a hydrophobic element and wherein said mechanical air eliminator is capable of eliminating air from said infusion drip chamber even when said hydrophobic element of said automatic air eliminator is wetted.

7. (Original) The system of claim 1, with said automatic air eliminator further comprising:
a body including a body air passage, said body air passage communicates with said interior of said infusion drip chamber;

a hydrophobic element capable of allowing air to pass through and capable of blocking fluid;

a receptacle chamber capable of receiving said hydrophobic element; and

a cap including a cap air passage and capable of fitting in said receptacle chamber and retaining said hydrophobic element;

wherein said cap air passage communicates with said exterior of said infusion drip chamber and is substantially aligned with said body air passage when said cap is in position at least partially in said receptacle chamber and wherein vented air must pass through said hydrophobic element.

8. (Original) The system of claim 7, wherein said cap is retained in said receptacle chamber by a friction fit.

9. (Original) The system of claim 7, wherein said cap is retained in said receptacle chamber by a snap fit.

10. (Original) The system of claim 7, wherein said cap air passage is substantially coaxial with said body air passage when said cap is in position at least partially in said receptacle chamber.

11. (Currently amended) An air venting method for an infusion drip chamber, comprising
~~the steps of:~~

providing an automatic air eliminator capable of substantially, automatically and continuously venting said air; and

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providing a mechanical air eliminator capable of mechanically venting said air at discrete time intervals, ~~said mechanical air eliminator comprising by:~~

~~a conduit capable of fitting a conduit~~ in a port of said infusion drip chamber;

~~forming~~ a plunger chamber ~~formed~~ in said conduit;

~~moving~~ a plunger ~~movable~~ in said plunger chamber;

~~a biasing device operative to maintain~~ said plunger in a normally closed position; and

~~at least one vent opening~~ a vent in said plunger chamber and communicating with said exterior of said infusion drip chamber, with said at least one vent opening being spaced apart from said plunger when said plunger is in said normally closed position; and

wherein displacing said plunger ~~is capable of being displaced~~ by a positive air pressure in said drip chamber until said at least one vent opening communicates with said interior of said infusion drip chamber and vents said infusion drip chamber.

12. (Currently amended) The method of claim 11, wherein further comprising manually manipulating said mechanical air eliminator ~~is capable of being manually manipulated~~ to vent said air when a hydrophobic element of said automatic air eliminator is wetted.

13. (Currently amended) The method of claim 11, wherein further comprising said mechanically venting ~~occurs~~ after said automatic venting.

14. (Currently amended) The method of claim 11, wherein further comprising said mechanically venting ~~occurs~~ simultaneously with said automatic venting.

15. (Currently amended) The method of claim 11, wherein further comprising said mechanically venting ~~occurs~~ independently of said automatic venting.